



Figure. 1. The immature female Egyptian Vulture entangled in the stabilizer.

407; Lorenzo et al. 1997, *Vieraea* 26:1–10). Hooking in stabilizers was never observed before, although vultures often roost in these structures (36.9% of the individuals roosting in pylons perch on stabilizers, $N = 384$, unpubl. data). It cannot be discarded, however, that some injured birds may escape after entangling. In fact, during 2001 we have observed four free-ranging individuals with fractured legs; another bird was missing a leg. Survival probabilities of these individuals would be consequently reduced. As the use of leg paddle traps is unknown on the island it seems reasonable to examine the role that entanglement may have in the occurrence of leg injuries. Finally, the Canarian population of this species is endemic to the archipelago (*N. p. majorensis*; Donázar, et al. 2002, *J. Raptor Res.* 36:17–23) and is extremely endangered (26 breeding pairs in 2001, Donázar et al. 2002). Casualties on power lines has caused the mortality of 14% of the extant Canarian Egyptian Vultures (16 cases of electrocution, 1 case of collision, and 1 case of entanglement) and represent an important risk to this population. This problem should also be considered in the design of power lines potentially used by large roosting birds in other regions of the world.

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BARRED FOREST-FALCON (*MICRASTUR RUFICOLLIS*) PREDATION ON A HUMMINGBIRD

Hummingbirds are widely regarded as having few predators away from the nest. However, incidental attacks upon hummingbirds by a number of bird species have been reported and may exert at least a moderate selective pressure. Wright (1962, *Auk* 79:112) reported a Baltimore Oriole (*Icterus galbula*) killing a Ruby-throated Hummingbird (*Ar-*

chlochus colubris). In addition, Brown-crested (*Myiarchus tyrannulus*) (Snider 1971, *Am. Birds* 25:780–784; Gamboa 1977, *Auk* 94:157–158) and Gray flycatchers (*Empidonax wrightii*) (Seutin and Apanius 1995, *Wilson Bull.* 107:565–567) have been observed to prey on hummingbirds. A Greater Roadrunner (*Geococcyx californianus*) was observed catching hummingbirds at a feeder in Arizona (Spofford 1976, *Condor* 78:142). In contrast, it appears only a few raptors prey on hummingbirds. This might be because hummingbirds offer such small energy rewards for a large predator (Seutin and Apanius 1995). Nevertheless, Merlins (*Falco columbarius*) have been observed chasing and catching hummingbirds successfully (Sprot 1927, *Condor* 29:71–72; Lowery 1938, *Auk* 55:280; Mayr 1966, *Auk* 83:664), and both Mayr (1966) and Balgooyen (1976, *Univ. Calif. Publ. Zool.* 103:1–83) observed American Kestrels (*Falco sparverius*) catching hummingbirds in the air. Also, Peeters (1963, *Wilson Bull.* 75:274) observed a Sharp-shinned Hawk (*Accipiter striatus*) catch an Anna's Hummingbird (*Calypte anna*).

Only two small raptors, Bat Falcons (*Falco rufigularis*) and Tiny Hawks (*Accipiter superciliosus*), take large numbers of hummingbirds (Beebe 1950, *Zoologica* 35:69–86; Stiles 1978, *Auk* 95:550–553). Beebe (1950) estimated that 16% of a Bat Falcon's diet consisted of hummingbirds, but he did not believe that these falcons had developed a specific hunting technique to catch hummingbirds. In contrast, Stiles (1978) suggested that Tiny Hawks are hummingbird specialists that employ three different techniques to catch hummingbirds. These tactics include still-hunting, waiting in ambush by a hummingbird's territorial perch, and flying rapidly between several territorial hummingbird perches. We report here a capture of a hummingbird by a Barred Forest-Falcon (*Micrastur ruficollis*). This forest-falcon used a tactic not reported before.

The capture occurred at Loma Linda Botanical Gardens (00°01.62'S, 078°40.55'W) at ca. 2065 m elevation along the Old Nono-Mindo Road about 6 km west of village of Tandayapa in northwest Ecuador. The gardens comprise 30 ha and include abandoned pasture, secondary forest, and primary cloud forest. The capture occurred in part of abandoned cattle pasture where the first author maintains 30 hummingbird feeders, which daily attract 12–15 hummingbird species. The most common species at the Loma Linda feeders are: Green (*Colibri thalassinus*) and Sparkling violet-ears (*C. coruscans*), Western (*Chlorostilbon mellisugus*) and Andean emeralds (*Amazilia franciae*), Booted Racket-tails (*Ocreatus underwoodii*), White-bellied (*Acestrura mulsant*) and Purple-throated woodstars (*Philodice mitchellii*), and Buff-tailed Coronets (*Boissonneaua flavescens*).

Most of the feeders at Loma Linda have an attendant (aggressive) hummingbird that keeps other hummingbirds away from their feeder. Although different hummingbird species guard feeders, a hierarchy of possession is evident. Western Emeralds and Booted Racket-tails guard their feeders, but rarely attempt to evict larger hummingbirds; the two woodstar species do not display territorial behavior. The most aggressive and successful at defending feeders are Sparkling Violet-ears, which is the largest and most common species at Loma Linda. Typically, Sparkling Violet-ears chase other hummingbirds for 3–10 m, before returning to a favored perch. In mid-June 2000, a Barred Forest-Falcon flew into a nearby tree at the edge of the abandoned pasture about 15 m from one of the guarded feeders and landed about 15–18 m up in the tree. The Barred Forest-Falcon stayed in the tree for 5–10 min, watching the hummingbirds before attacking one of the birds guarding a feeder. Rather than giving chase to the Sparkling Violet-ear, the raptor flew straight to the perch used by the hummingbird. As the violet-ear returned to its perch after chasing away another hummingbird from its feeder, the falcon intercepted and captured the hummingbird as it landed on its perch. The Barred Forest-Falcon then flew into an inga tree (*Inga edulis*), plucked out several of the hummingbird's breast feathers, and fed. The hummingbird did not die immediately, but continued to flutter. After several minutes the forest-falcon flew off with the remains of the hummingbird.

The attack by the forest-falcon suggests the bird anticipated the return of the hummingbird to its favored perch. Moreover, the kind of territoriality displayed by Sparkling Violet-ears and their habit of remaining perched in exposed, prominent locations adjacent to each feeder seems to make them especially vulnerable to interception. This intercept strategy appears nearly identical to the ambush strategy employed by Tiny Hawks (Stiles 1978), the only difference is that the Barred Forest-Falcon did not move in close (2–3 m) to the perch (ambush strategy), but rather began its attack 20 m away. The behavior of the Sparkling Violet-ears suggests that all species of territorial hummingbirds might be susceptible to this type of attack, especially where large concentrations of feeders and hummingbirds occur.

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